Contributed session

A Two-Player Differential Game Model for the Management of Transboundary Pollution and Environmental Absorption

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Abstract. It is likely that the decentralized structure at the level of nations of decision-making processes related to polluting emissions will aggravate the decline in the efficiency of carbon sinks. A two-player differential game model of pollution is proposed. It accounts for a time-dependent environmental absorption efficiency and allows for the possibility of a switching of the biosphere from a carbon sink to a source. The impact of negative externalities from transboundary pollution wherein countries are dynamically involved is investigated. The differences in steady state between cooperative, open-loop, and Markov perfect Nash equilibria are studied. For the latter, two numerical methods for its approximation are compared.

First section

In this paper we generalize the results given in [1] and [2].

Second section, if any

References

[1] Huang, H.Y., *Unified approach to quadratically convergent algorithms for function minimization*, Journal of Optimization Theory and Applications 5 (1970), 405–423.

[2] Lee, E.S., *Quasilinearization and Invariant Imbedding.* Academic Press, New York, 1968.